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ABSTRACT

The purpose of this report is to focus attention on nurse manpower data and the related coordinating activities of the Interagency Conference on Nursing Statistics (ICONS). The report describes ICONS and its objectives and presents a summary of the proceedings of the organization's 1971 conference. The papers which are included provide information on current surveys, compilations, and health manpower activities of various agencies. (BH)

ED 064505

INTERAGENCY CONFERENCE ON NURSING STATISTICS

Report of a Meeting
Bethesda, Maryland
November 23, 1971

VT 015 892

INTERAGENCY CONFERENCE ON NURSING STATISTICS

- REPORT OF A MEETING

Bethesda, Maryland

November 23, 1971

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U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service, National Institutes of Health
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Division of Nursing
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FOREWORD

The purpose of this publication is to focus attention on nurse manpower data and on the related coordinating activities of the Interagency Conference on Nursing Statistics (ICONS). Each year this informal association conducts a program meeting as a means of continuing to meet one of its objectives; i.e., to promote cooperation among statistical workers in the different agencies concerned with nursing statistics.

The three cosponsors of the Conference - American Nurses' Association, National League for Nursing, and the Division of Nursing of the National Institutes of Health - alternate the Chairmanship and arrangements for its meetings. In November, 1971, the Division of Nursing hosted the program meeting. This report is a summary of the proceedings of that meeting. It contains, in addition to the agenda, a brief history of ICONS and its objectives, and remarks made by program participants from a few of the many agencies interested in the work of the Conference.

The first published report of a program meeting - "Papers Presented at the Interagency Conference on Nursing Statistics, February 8, 1968" - focused on State and local health manpower planning activities with specific reference to nurse manpower data collection. This report brings together information on some current surveys, compilations, and activities related to nursing statistics. It is addressed to those who collect, compile, disseminate, and use manpower data in their planning for health care throughout the country.

Jessie M. Scott
Assistant Surgeon General
Director
Division of Nursing

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Guest of Division of Nursing

AGENDA

November 22, 1971 - Business Meeting

Progress reports by ICONS members:

Division of Nursing, NIH
National League for Nursing
American Nurses' Association
American Hospital Association
American Medical Association

Discussion:

ANA Convention
Field distribution: RNs and LPNs

November 23, 1971 - Program Meeting

Call to order
Greetings - Julia P. Brandeberry, Deputy Director,
Division of Nursing
Introductions and announcements
Special Program session with Division of Nursing staff
and guests
Review of ICONS organization and activities
Papers on current health manpower activities and data needs
General discussion
Closing remarks
Adjournment

REVIEW OF ICONS ORGANIZATION AND ACTIVITIES

by Eugene Levine
Chief, Manpower Evaluation and Planning Branch
Division of Nursing, Bureau of Health Manpower Education
National Institutes of Health

The Interagency Conference on Nursing Statistics (ICONS) is an informal association of statisticians from agencies compiling nursing statistics. Initiated in 1955, the Conference includes representatives from the American Nurses' Association, the National League for Nursing, the Division of Nursing of the National Institutes of Health, the American Hospital Association, and the American Medical Association. Participants from other organizations and governmental agencies attend meetings of the Conference when the agenda embrace their areas of interest. The objectives of ICONS are to:

1. Determine gaps in nursing statistics.
2. Improve the quality of nursing statistics.
3. Stimulate new data collection and analysis.
4. Prepare national nurse estimates of need and supply.
5. Promote cooperation among statistical workers in the different agencies concerned with and using nursing statistics.

As a means of attaining these objectives, the Conference holds two meetings each year. One meeting is usually devoted to the preparation of national estimates of nurse manpower needs and supply, and discussion of related methodological problems. The second meeting generates exchange of information and the promotion of cooperation among the participating agencies in the collection, dissemination, and use of nurse manpower statistics. This is a report of such a meeting, which was held at the National Institutes of Health, Bethesda, Maryland, on November 23, 1971.

The Nurse Training Act of 1971, signed into law on November 18, requires an annual evaluation of the impact of the legislation on the supply of nurses in relation to the long-term national needs for nurses. This ICONS program meeting, then, was most timely in that it brought together a number of participants who are conducting various activities in the field of health manpower, and who are contributing some of their expertise toward a better understanding of the factors involved in planning for health education and services.

Joining the members of ICONS for this session were representatives of other national organizations and governmental agencies, and the Director of the Department of Nursing Studies, University of Edinburgh.

This report contains the remarks made by the program participants concerning their data-collecting activities and interests, with specific reference to nurse manpower data. The papers were prepared by the participants, and no attempt was made to edit them in a uniform style. It is hoped that this publication will provide useful information on the extensive amount of data collection and compilation that is currently being conducted in the health manpower field.

UNIFORM EVALUATION PROTOCOL FOR MIDLEVEL HEALTH WORKERS

by Douglas A. Fenderson
Chief, Health Services Manpower
National Center for Health Services Research and Development
Health Services and Mental Health Administration*

The purpose of this paper is to describe a provisional method for examining the process of ambulatory care such that manpower utilization and related costs can be assessed, with implications for performance assessment. The Uniform Evaluation Protocol was developed as part of the five-year effort of the National Center for Health Services Research and Development to study the role and utilization of what we call "mid-level" medical workers. This includes a variety of physician assistant and extended nurse roles.

Before presenting details of the method, it is necessary to specify some of the assumptions which underlie its development and use:

1. The United States does not have a sufficient number of physicians engaged in primary medical care to meet apparent needs -- moreover, many functions in primary care do not require the extensive preparation of the physician.

2. The proportion of these "nonphysician" functions is great enough to warrant the explication of an assistant role.

3. Barriers based on legal, jurisdictional, and educational traditions will not stifle the new approach.

4. Methods of the behavioral, systems, and planning sciences can be applied to the delivery of medical care.

5. Assistants will contribute substantially to the needed redistribution of health services (i.e., will be more likely to work in "unpopular" regions of the country).

6. It is likely that new legislation will pass aimed at vastly improved access to health care, including the idea of informed consumer choice.

7. Yet another assumption, is the shift in the frame of reference from an exclusively personal care system, to such care in the context of what is now commonly known as "population medicine." You will recognize this as a unifying theme in most of the thirteen Bills on health care entitlement now before Congress.

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* Dr. Fenderson is now Director, Office of Special Programs, Bureau of Health Manpower Education, National Institutes of Health.

Although each of these assumptions is worthy of discussion, this is beyond the scope of this paper.

Technically, the Uniform Evaluation Protocol is a "demand-chain" model of ambulatory care which disaggregates the demand imposed by users of a system into the component frequency and duration of treatments, disposition, tasks, and functions of various clinical personnel in relation to diagnosis.

Departing from the usual Federal approach of funding single unique projects, the "R&D" strategy involves attempts to replicate promising innovations under varying geographic and other constraints, using a common set of conventions to determine their value. Thus, for example, five replications of the original MEDEX project, which was used as the mechanism for constructing the evaluation protocol, are now under way. A similar PRIMEX nurse role is being carried out in four locations. About one hundred twenty medical practice units are under study and cooperative agreements with the Veterans Administration and Indian Health Service are in process. Other medical, community, and educational groups have received copies of the protocol. We wish to cooperate with various groups in the uniform collection of manpower utilization data.

The protocol is not intended to replace other evaluation instruments, but to get management data on productivity. It is more extensive than is feasible for application in many nonresearch settings, but subsets of the instruments can be applied usefully. The minimum set includes a potentially machine processable patient encounter form, a task inventory, an accounting procedure, and an activity log. In addition to this minimum set, the protocol includes a "critical incident" method of tracking interpersonal relationships over time, a "weighted application blank" methodology for follow-up and employment selection studies, a patient-flow study, observational validation procedures for content, duration and task distribution in the practice unit, and psychological measures of employment-related "reinforcers" and employee-related "needs," measures which have been shown in a number of studies to be predictive of job satisfaction as evidenced by employment tenure.

The patient encounter form is similar to many such forms designed for use of prepaid medical groups and other highly organized ambulatory care settings. It includes a precoded list of complaints, diagnoses, and treatments. It allows for a continuous tracking of gross clinical activity for each class of personnel because the estimated duration of each direct visit by each provider is recorded. This serves as a management tool, as well as a basis for looking at the kinds of problems and treatments attended by auxiliary personnel. It is thus possible to determine periodically if such personnel are functioning within the area of delegated responsibility; or if utilization borders on the lower or upper reaches of the defined role, some indication of appropriateness of utilization is possible.

A more detailed disaggregation of activities and functional job relationships is made possible by the use of a task inventory methodology developed by the military as a means to continually relate actual job performance requirements with training and retraining programs. Results of task inventory studies are used to make decisions about job content and structure, aggregation of tasks to form complete and relatively full-time job entities to restructure job relationships, and to empirically determine curriculum needs.

A simple cost accounting form, built around medical practice income tax reporting requirements examines changes over time in selective expense categories associated with the employment of mid-level medical workers.

Although the motivation of some participating physicians has been relief from an overwhelming workload, most also want to know how manpower innovations will affect practice income and expense. And, as we look ahead to more managed approaches to ambulatory care in an industry in which nearly 70% of the dollar flow is associated with personnel cost, these financial questions are far from trivial.

It is also important to know how the new team configuration will affect interpersonal relationships. Unless some of the new types of workers find their roles more satisfying than many now employed, current efforts may be in vain. A method for observing these relationships over time is the critical incident technique, originally developed by John Flanagan. It requires periodic reports from team members of actual incidents within a time period (say two weeks) that they consider typical of their usual working relationships with specified team members. If this incident is either favorable or unfavorable, the opposite experience is requested.

Information derived from an analysis of these incidents is of obvious relevance to the selection, training, orientation and in-service training of such workers. These data, across a number of practice units, indicate the extent to which such relationships are a function of the job itself or are unique to a particular setting and the individuals involved. It is important to know to what degree these relational stresses and satisfactions are predictable and to what degree, random.

The purpose of this evaluation development was to determine the potential contribution of mid-level personnel in a variety of organizational settings. Thus, for example, we are studying such workers in rural solo and inner-city solo practice, in small groups, in ambulatory and emergency clinics, in prepaid group practices, and even in remote dispensary clinics linked to medical supervision by communication and transportation

arrangements. Some of these models -- e.g., pediatric nurse practitioners, nurse managers of chronic disease, the nurse midwife and others -- have been demonstrated a number of times. At this point what we need, rather than more studies of these workers in natural settings, is to design work environments which make use of what we already know, using a continuing program of performance assessment and knowledge-of-results reporting. For others of the many new physician's assistant types, we need comparative studies to determine what is in fact new and what is simply a more or less effective variation on the theme. Finally, in view of the raging debate over formal academic preparation versus more functional and job-related training, objective data about job performance makes possible some useful comparison of the performance of students prepared in a variety of ways.

"Everything is more complicated than it seems." The Evaluation Protocol described here was initiated only two years ago. It needs further refinement and development. If these remarks have served to stimulate discussion and extension of such an evaluation approach, they will have served their purpose.

MANPOWER ACTIVITIES OF THE DIVISION OF ALLIED HEALTH MANPOWER

by Maryland Y. Pennell, M.Sc.
Chief, Office of Special Studies
Division of Allied Health Manpower
Bureau of Health Manpower Education
National Institutes of Health

In any discussion of allied health manpower the first item is the matter of definition -- whether nursing manpower is to be included or excluded. So in presenting a brief summary of the activities of the Division of Allied Health Manpower I'll try to be explicit on that point.

Health Manpower Source Book 21 which was published in 1970 has the title "Allied Health Manpower, 1950-1980." Statistics are presented in four manpower categories: medical allied, dental allied, nursing, and environmental health. For each category there are discussions of the growth of manpower, future supply, and requirements. The material for the nursing section was prepared by the Division of Nursing and we are pleased to make the acknowledgement in the publication. I would call also to your attention two appendices: (a) the first inventory of Federal programs that support health occupations training, which has now been updated; and (b) the list of health occupations first prepared in 1965 which needs updating.

DAHM has responsibility for funding education for some 20 allied health professions. We are concerned with possible overproduction of some kinds of manpower in certain areas of the country, due to adverse economic conditions. This problem was not anticipated when the manpower projections were prepared for HMSB 21.

With regard to educational statistics, there are two ongoing activities neither of which include basic occupational preparation for nursing. They are the inventories of collegiate programs being prepared under contracts with the American Association of Junior Colleges and the Association of Schools of Allied Health Professions. The directory of associate degree and certificate programs is to be available early in 1972; that for baccalaureate and higher will take a while longer. A vocational education inventory is also under consideration; the feasibility study by Operations Research was completed in November. In the field of public health, plans call for a sample survey of graduates of schools of public health since 1956; this will include nurses.

Physician assistant training programs funded by DAHM through grants and contracts are not meant to be of the nurse extender type. The problems of titles and functions as these and other new occupations emerge are reflected in data collection. Many organizations including the American Medical Association and the American Hospital Association are playing active roles in recognition of such manpower, accreditation of training programs, and possible certification of qualified workers.

Operation MEDIHC (Medical Experience Directed Into Health Careers) is now placed within DAHM. Programs are operational in all except two States. Current reports indicated that about 32 percent of applicants to this counseling and referral service have been placed in jobs and/or training programs in the health field.

A major focus of allied health recruitment and counseling is carried out by National Health Council under contract with DAHM. NHC is the agency that prepared the first edition of the "Health Careers Guidebook" in 1955, and cooperated with the Department of Labor for the second edition in 1965. The third edition, now in final stages prior to publication, will be a joint publication of DOL and NIH-BHME.

In addition to the Department of Labor, DAHM has cooperative arrangements with other Federal agencies. We have established working relationships with the Atomic Energy Commission (for nuclear medicine manpower), the Department of Defense (for ex-medical corpsmen), and the National Medical Audiovisual Center (for development of allied health professions educational materials).

The credentialing of individuals, i.e., recognizing their professional or technical competence, is of major importance for all types of health manpower. DAHM's interest is manifest through past or ongoing studies of licensure, certification, and accreditation. The 1971 publication on "Accreditation and Certification" (NIH 71-192) presents selected data on 16 allied health occupations. Nursing is not included in the statistical presentation but much of the discussion is pertinent to that discipline. You may have seen the Secretary's "Report on Licensure and Related Health Personnel Credentialing" sent to the Congress in June 1971. Our Division had considerable input to that report and also to the current Study of Accreditation of Selected Health Educational Programs (SASHEP), headed by Dr. William Selden. The first set of SASHEP working papers was published in November 1971; the second set is due in February 1972; and the final report, later in the spring.

One aspect of credentialing involves testing -- equivalency for academic credit and proficiency for occupational performance. Test development is new in the health field; a summary is presented in "Equivalency and Proficiency Testing: A Survey of Existing Testing Programs in Allied Health and Other Health Fields" (unnumbered DAHM publication, 1971). Both kinds of tests have been or are being developed by the Educational Testing Service for four subject matters in the field of medical technology. The proficiency tests were contracted for by the Department of Labor; the equivalency tests by DAHM. Our Division has a 9-page document on "Policies for the Development of Credentialing Mechanisms for Health Personnel (revised 12/1/71)." We expect to concentrate on the development of proficiency tests with contracts for two to four allied health occupations awarded this fiscal year.

INSTITUTIONAL MANPOWER DATA FROM MEDICARE

by James M. Hatten
Statistician, Provider Statistics Branch
Division of Health Insurance Studies
Office of Research and Statistics
Social Security Administration

Rather than belabor you with a lengthy description of the Medicare statistical system and the manpower data it generates, we have prepared an illustrative package of source forms for input data, of charts outlining Medicare's benefit provisions and the flow of data into the system, and of a report showing the manpower data generated. Let me, however, briefly summarize our total statistical system and then focus on those parts that will be of specific interest to the participants at this conference.[1/]

The Statistical System

The primary objective of the health insurance statistical system is to provide data to measure the effectiveness of the Medicare program. Benefit payment operations furnish the means of obtaining continuous information about the amount, kind, and cost of medical care services used by the aged. Information from the application forms of hospitals, extended care facilities, home health agencies, and independent laboratories provide data on the characteristics of each provider of services. The claim number assigned to each beneficiary links the various services he uses under the program with his demographic characteristics.

The data collection system has two inherent characteristics that determine the scope, detail, and flexibility of the available data. First, data are collected and maintained on each beneficiary so that he and his medical experience under the program form the basic unit of measurement and analysis. Second, records for each bill paid under the program and, for a sample of beneficiaries, records of diagnoses and surgical procedures are maintained on a centralized basis.

1/A detailed description of the Medicare statistical system may be found in "Statistical Elements of Medicare," by Aaron Krute, Newton Dikoff, and Jack Scharff, Public Health Reports, Vol. 83, No. 5, May 1968, pp. 352-358.

The Basic Records

The statistical system is based on five related computer tape records: the health insurance entitlement master file, the hospital insurance (Part A utilization record, medical insurance (Part B) payment record, the record containing information from medical insurance bills for a 5-percent sample of medical insurance enrollees, and the provider record. It is this last one--the provider record--that contains our manpower data. Allow me to dispose of the other records swiftly by cluing you in on what they are for, then discuss in detail our provider record, its establishment, its maintenance, and some of its uses.

The Health Insurance Entitlement Master File

The health insurance entitlement master file identifies each aged person eligible for health insurance benefits and indicates whether he is entitled to hospital insurance benefits, to supplementary medical insurance benefits, or to both. The entitlement record provides the population data for each part of the program and therefore serves as the base for the computation of a variety of utilization rates, limited only by its demographic content.

Utilization Record for Hospital Insurance

Administration of the hospital insurance program requires that two facts be known about each aged enrollee at the time of admission to a hospital or extended care facility or at the start of an organized home health care program--his entitlement under the program and the extent to which he has used the benefits available to him under his current "benefit period." Therefore, a master utilization record has to be kept of the number of days of care received by each aged person in a hospital or extended care facility and, also, the number of home health visits he has received. From this record utilization histories can be constructed covering a variety of statistical variables--admission and discharge rates, charge and payment data (including figures on noncovered charges, deductibles, and coinsurance amounts), primary diagnosis, surgical procedures, lengths of stay, etc.

Payment Record for Medical Insurance

Payment or reimbursement under the SMI program is made only after receipt by the Part B carriers, who review and pay claims for benefits under the program, of bills having allowed charges exceeding $50 during a calendar year. For the insured population, carriers must know from a central source whether or not the deductible has been met, and whether or not the person is still enrolled under the SMI program. To enable the Social Security Administration to meet these needs, carriers furnish SSA a payment record containing summary data for each bill paid. It shows the beneficiary's claim number, the doctor's charge, the charge allowed by the carrier, the physician's specialty, the type of service provided, and the amount reimbursed.

Sample of Medical Insurance Bills

Basic statistics on the utilization of physician services covered under the supplementary medical insurance program are derived from a continuous sample of bills paid by carriers to, or on behalf of, 5 percent of all enrolled persons. Intermediaries have been given specific digits of the health insurance claim number to use in selecting the sample. The billing form used by physicians is designed to provide information on the time and place of each service, the exact procedure or service provided, the condition treated, and the physician's or supplier's charge for the specific service.

The Provider Record

The fifth basic computer tape record--the one of specific interest to us today--is the provider record. Every hospital, home health agency, extended care facility, and independent laboratory must apply for participation in Medicare in order to be reimbursed for its services. Data included on the application forms used by these institutions are recorded in the central provider record and are updated as facilities are recertified periodically, new ones apply for participation, and as some leave the program.

The certification process can be briefly described as follows:

1. Providers send application for participation in Medicare to agency (usually State Health Department).

2. State agency conducts onsite survey, if necessary, to determine whether provider is eligible, and sends documentation to the SSA regional office.

3. The regional office reviews file and after consultation with the Public Health Service either confirms State agency recommendation or returns file for additional documentation.

4. If provider is found eligible, the regional office sends an agreement to the provider, who in turn signs and returns the agreement to the regional office. The completed agreement is then returned to the provider, and all other documentation is retained in the central office.

5. The provider number and name are entered onto utilization tape and are used when bills are sent to record utilization of services.

The certification process is designed to ensure that providers meet statutory requirements and are in substantial compliance with conditions established by the Secretary of Health, Education, and Welfare, in the interest of the health and safety of patients. These conditions differ for different types of providers. Hospitals, for example, must maintain clinical records for all patients, have by-laws in effect for its medical staff, require every patient to be under the care of a physician, and provide 24-hour nursing service, rendered or supervised by a registered professional nurse, with a licensed practical nurse or registered professional nurse on duty at all times. An acceptable hospital utilization review plan must be in effect, and the hospital must be licensed. If deficiencies in meeting these conditions are found, a hospital may still be certified as long as (a) it is making reasonable plans and efforts to correct the deficiencies, and (b) notwithstanding these deficiencies, it is rendering adequate care without hazard to the health and safety of individuals being served.

The detailed information about each provider derived from this process includes such items as the State and county in which the institution is located; number of beds; type of ownership; major types of services provided; accreditation status; medical school affiliation; approved training programs; and staff characteristics, including the number of physicians, registered nurses and licensed practical nurses, home health aides, and other kinds of therapeutic and skilled medical care personnel. When the information in this provider record is combined with utilization data, the characteristics of facilities that provide care can be related to the kinds and amounts of services used by the aged.

One of the limitations of our provider data would be that they are not all recorded as of one point in time. Facilities are, of course, certified for participation in Medicare on any given day of the year. They are resurveyed periodically, depending upon their level of certification, of which there are three categories: certified with no significant deficiencies; certified with correctible deficiencies; or certified with a special certification, also called a "limited access" certification. For example, the initial certification of extended care facilities found to be in substantial compliance is for a period of 1 year. If deficiencies are found on initial survey, a resurvey must be made by the State agency within 9 months or earlier, depending on the nature of the deficiencies. Extended care facilities with special certifications are resurveyed at least semi-annually. These periods of certification also differ for other types of providers. Hospitals without deficiencies are resurveyed every 24 months. So at any point in time, some of our manpower data may be as old as a year or two, while some may be as fresh as two weeks. This effect is mitigated somewhat by the fact that certifications are spread throughout the year.

I should also point out, as a possible source of error in our data, that definitions of specific duties performed by employees in any job category were not given to facilities for use in completing the application forms. The regulations describing the conditions of participation for various types of health facilities specified only the qualifications required for physical therapists, occupational therapists, and medical social workers. The fact that facilities did not have specific definitions to use may result in some lack of uniformity in the data reported by individual providers.

Manpower data requested from providers are in terms of "full-time equivalents," comparable to the identical entry on the American Hospital Association's annual survey form. They are requested to include only those personnel regularly employed by the facility, distinct part, or unit requesting participation. In the instances where only a distinct part of an institution is certified as an extended care facility, we must rely on the administrators filling out the forms to report only those personnel regularly employed in the distinct part. Members of religious orders are included, but all trainees, private-duty nurses, and volunteers are excluded. Full-time equivalents are computed by adding the total number of hours worked by all employees in each classification in the week ending prior to the week of filing the application, then dividing by the number of hours in the standard work week.

We have access to some reliable information on the numbers of nurses employed by facilities certified for Medicare. We have crossed these data by type of provider, State, and in a variety of other ways. One of the components of the package of source and background materials we have assembled for you consists of a report on health manpower in Medicare providers as of July 1969. Following the release of this one-time paper, we felt it would be more meaningful to integrate data on provider staffing into a series of annual reports we publish, one for each type of provider. So, starting with the reports for 1969, we expect to have integrated a sizable number of tables devoted to health personnel into each separate report.

So much for what we have done with the general health manpower data we are able to gather as a byproduct of our provider certification process. Our interest in nurses is characterized by studies we have performed which relate nurses to patients (in institutions) or, in the instance of home health agencies, numbers of episodes of service to number of nurses. A number of studies utilizing our data on nurses are presently in the planning stage. However, our challenge appears to be the relative lack of knowledge about our staffing data among health manpower specialists. We hope to open some doors today, so that others may consider the virtues of our health manpower data resources, and perhaps thereby, utilize these data to their fullest potential.

HEALTH MANPOWER ACTIVITIES OF THE BUREAU OF LABOR STATISTICS

by George L. Stelluto
Chief, Division of Occupational Wage Structures
Bureau of Labor Statistics
U.S. Department of Labor

This afternoon I want to cover three program areas of the Bureau of Labor Statistics that generate information relating to health manpower:

1. Occupation wage surveys.

2. Monthly employment estimates from the Bureau's series of Employment and Earnings.

3. Occupational Outlook activities.

I head up the Division of Occupational Wage Structures and will spend most of my allotted time on current activities and future plans in this area.

The Occupational wage surveys are personal visit surveys that develop information on occupational earnings and the incidence of supplementary wage benefits such as paid holidays, paid vacations, health, insurance, and pension plans.

The area wage surveys cover about 90 metropolitan areas each year and include the following industries: manufacturing; public utilities; wholesale and retail trade; finance, insurance, and real estate; and services (not including medical services). Cross-industry jobs are surveyed, including industrial nurses - that is, registered nurses working in health units in the industrial setting, in addition to other professional and technical occupations, office clerical, skilled maintenance, and custodial and material movement jobs. Data are collected on the number and straight-time weekly earnings of industrial nurses by area, and estimates are made for individual areas and for all metropolitan areas of the United States, with broad regional detail for the Northeastern, Southern, North Central, and Western Census Regions. However, no estimates are made on the incidence of supplementary wage benefits for industrial nurses.

The industry wage survey of nonfederal hospitals is conducted on a three-year cycle. It covers occupations in four employment groups:

1. Registered professional nurses, including directors of nursing, supervisors, head nurses, general duty nurses, and nursing instructors.

2. Other professional and technical jobs - dietitians, medical technologists, social workers, X-ray technicians.

3. Office clerical.

4. Other jobs - practical nurses, nursing aides, maids and porters, kitchen helpers, laundry workers.

These surveys began in 1956-57 with data obtained in 16 metropolitan areas. The most recent study - 1969 - covered all metropolitan areas, with separate detail for 23 areas, because of interest in the Fair Labor Standards Act. For the future, if funds are available, we propose to survey hospitals in about 20 metropolitan areas every two years.

The industry wage survey of nursing homes, except those under government sponsorship, is not in our regular program, but is done because of interest in the Fair Labor Standards Act. It covers professional and technical occupations, e.g., registered professional nurses, as well as service and maintenance jobs, e.g., practical nurses, nursing aides, kitchen helpers, maids and porters. The first survey in nursing homes was in 1965, with estimates for all metropolitan areas and separate detail for 15 areas. Another two-period survey (October 1967 and April 1968) was done because the Federal minimum wage was raised to $1.15 an hour in February 1968. In the future, we hope to study wages in nursing homes in 20 areas every two years, alternating with the hospital surveys.

The Bureau's monthly series provides estimates of employment in nongovernment institutions - these are a shuttle type survey, obtaining total employment figures for medical and other health services, total and non-supervisory personnel for hospitals. No wage data are included.

Currently, some of our activities under the Occupational Outlook umbrella are health manpower projections for 1980 and individual reprints from the Occupational Outlook Handbook.

Projections for allied health manpower are published in the Quarterly, winter issue, 1970. We have also projected needs in 1980 for a number of occupations, including physicians, dentists, registered nurses, practical nurses, and hospital attendants or aides.

The individual reprints I mentioned are directed mainly toward high school guidance counselors and other interested parties. They provide information on the more immediate employment outlook for health occupations, including registered nurses, practical nurses, hospital attendants, hospital administrators, physicians, dietitians, and others.

Summarizing our health manpower activities, I have mentioned three occupational wage surveys: the area wage surveys, hospital surveys, and nursing homes surveys; also the monthly employment estimates in private medical and other health services, and in private hospitals; and the occupational outlook, including 1980 projections and the outlook for employment in specific health occupations.

HEALTH MANPOWER ACTIVITIES OF THE NATIONAL CENTER FOR HEALTH STATISTICS

by Siegfried Hoermann
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National Center for Health Statistics
Health Services and Mental Health Administration

The National Center for Health Statistics has been concerned with health manpower resources since 1964. At present our program falls into six general areas. First is our "catch-up program." Our immediate concern here is with backlogged data resulting from the budget cuts of fiscal year 1969 till fiscal year 1972, and virtual elimination of the manpower function in the Center. The backlogged data include the vision and eye care surveys of 1968-69. The reports of ophthalmologists, optometrists, opticians, and opticianry establishments are now in various stages of processing. Also in progress is the report of the 1970 podiatry survey.

A second program area is the Federal-State-Local-Cooperative System operated jointly with the National Center for Health Services Research and Development. Our long-range objectives are: To share data, i.e., the local agency collects information which will be shared with State and national agencies; eventually to share the cost of data collection and dissemination; and to improve the quality of the data. Major problems are: coordination; maintenance of acceptable standards and comparability of data; funding, and a guarantee of continued support; areas not covered by a State or local system, or not-participating; and the drain on the NCHS staff. The National Center for Health Services Research and Development has the funds and the major responsibility for administering the system. Although we would like an independent data center, the end result of current negotiations probably will be a compromise.

The system consists of nine components or modules: two vital statistics, one health interview survey, and data from the following resources: hospital discharge surveys; national ambulatory medical care surveys; facilities surveys and licensing information; and manpower surveys and licensing information. The request for contract proposals for the system has been sent to the States.

Another program of the Center concerns licensing arrangements with the States. Ten health occupations are licensed in all States; 15 in some States. We have now a contract with the Census Bureau to study licensing agencies and determine the feasibility of a system of reporting by the States.

Our program related to health establishments consists of cooperative surveys with the Division of Manpower Intelligence in the Bureau of Health Manpower Education, and by-products of the establishment surveys. In 1969, we worked with DMI to survey the staffing of 1100 hospitals; in 1971 we surveyed 1500 staff members in 20 hospitals. The facilities studies include the joint annual survey with the American Hospital Association on staffing in AHA hospitals; nursing home surveys (resident places surveys) in 1968 and 1969 with detailed staffing information; odd-year biennial surveys of nursing homes and custodial care facilities including staffing; and surveys of outpatient facilities, including the family planning clinics, and the ambulatory care provided in physicians' offices. The last mentioned surveys are just starting.

The Center also is a repository in the Public Health Service for data on health manpower. We have tapes on physicians (M.D. and D.O.), physical therapists, pharmacists (1966), veterinarians (1967), etc., which can be used as sampling frames for small area reports of faciliites and manpower.

Finally, our "1509 Program" is the annual publication of Health Resources Statistics. This is compiled from data furnished by other agencies. It is a medium for fast, comprehensive, unitary reporting of health resources, and avoids backlogs created by time pressures in getting out detailed results of surveys and studies.

HEALTH MANPOWER ACTIVITIES OF THE DIVISION OF MANPOWER INTELLIGENCE

by Frank A. Morrone
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National Institutes of Health

The Division of Manpower Intelligence, Bureau of Health Manpower Education, was created in October 1970. Dr. William A. Lybrand, the first Director of DMI, was appointed in April 1971 at which time the Division became fully operational.

The Division was created to function as a staff organization to the Bureau Director and for the primary purpose of providing a Bureau-wide focal point for activities in the areas of health manpower resources and requirements, program statistics, data systems support, the collection cataloging and dissemination of health manpower information and for the research, development and implementation of methodology to enhance the mission of the Division as well as some aspects of Bureau program management.

To accomplish this assigned mission the Division is organized into five branches: (1) Resources and Requirements Branch; (2) Program Analysis and Reports Branch; (3) Data Systems Branch; (4) Research and Development Branch; and (5) The National Center for Health Manpower Information. This is what we refer to as the traditional organization with the traditional vertical hierarchy, however the goals and objectives of the division are to be accomplished through the implementation of a program that cuts across organization lines. The program can be summarized into seven categories as follows:

1. Health manpower resources - this activity encompasses the collection and analyses of data on health occupations to yield reasonable and accurate accounts of such things as (a) the numbers of individuals active, (b) the numbers produced by the education and training system currently, and expected changes in output due to new legislation, (c) the numbers of foreign medical graduates added to resources each year, (d) attrition rates, (e) inactive and employable and inactive and unemployable manpower, (f) planned growth of enrollments, (h) distribution of current active resources by occupation and county, (i) individual characteristics of health care practitioners such as type of practice, patient load, etc.

2. Health manpower requirements - covers the problem area of how many of what types of health manpower do we need currently and in the future. Because of the many facets to the problems encountered in this area it is most difficult to arrive at a consensus about shortages. Some of the major issues that must be addressed in coming to conclusions about requirements are: (a) What are the alternative assumptions that must be made about the health care delivery system that will emerge over the next decade? (b) What are the optimal manpower mixes for the efficient delivery of assumed health services in the urban setting - in the rural setting? (c) What are the skill levels required to perform the tasks in the delivery of health services? (d) How are services to be delivered in the rural setting and by whom? (e) How will the role of the physician assistant or physician extender affect the demand for physicians?

There are several activities conducted by the Division in an attempt to address these issues - one of which is an in-depth study of the staffing patterns of prepaid group practices which are considered health maintenance organization prototypes. Another study is concerned with the analysis of the health manpower components of small areas or regions in different parts of the United States.

Estimates of current shortages are as complex to arrive at as future estimates. It is frequently stated that there is a shortage of physicians, a shortage of nurses, and in general a shortage of health manpower. DMI is considering several alternatives for gathering information about these shortages in an attempt to quantify them. One plan under consideration for collection of requirements data for the occupations that are not independent practitioner professions calls for the establishment of centers that can keep the pulse of the requirements of employers of health manpower. These centers may be located in state health departments, regional medical programs or other similar organizations from which cyclical inquiries of employers are conducted. As additional practical alternatives develop DMI plans to explore them.

As for the independent practitioners there are several avenues of approach being explored that especially deal with those factors that can yield objectives and reasonable measures of the actual need for health services. Each alternative must consider the problem of distribution of health manpower as well as some reasonable level of use of auxiliary personnel.

3. BMIS - the acronym for Bureau Management Information - is designed to accommodate all of the data necessary for the Bureau to manage its programs and to support program operations and developments. It is a comprehensive open-ended system that contains statistical data on such things as health manpower resources by county, actual enrollments by school and class, grant and contract data by state and grantee; and program evaluation items. There are multiple data files all capable of being linked with each other simultaneously so that a multiplicity of information can be readily retrieved in a relatively short time. The currently operating system is in its embryonic stages and is a rapidly developing resource for the operating Division and the office of the Bureau Director.

4. Program Impact Analysis - this activity is designed to track the Bureau programs and to collect and prepare the types of data necessary to measure program accomplishments. A simple illustration can be found in the recent Nursing Manpower Act of 1971 and in the Comprehensive Health Manpower Training Act of 1971 with mandatory increases required by the schools to be eligible for capitation grants. Estimates were provided to the Congress on the expected growth in enrollment for each type of health profession school as a result of the mandatory increases required by the legislation. The actual impact of the legislation will be measured through data currently being gathered from the capitation grant applications. Several tables and analyses will be prepared from this data source to describe the total impact of this legislation on professional health manpower resources. Output and impact measures will be developed for all Bureau programs and will be available for analysis to Bureau program administration.

5. The National Center for Health Manpower Information is the organization that is both program oriented and has an organizational identity within DMI. It has as its prime functions the collection, cataloging, classification, abstracting, storing and disseminating of information about health manpower for use in the Bureau and other government and non-government organizations. The responsibility resides in this organization for liaison with other government agencies and their health manpower activities and for liaison with the HEW regional offices and the individual state health manpower programs.

Over the next several years an information network will be established with the regional offices that will have direct lines to computer files maintained in the DMI to meet information needs of the regional offices and to maintain special regional files.

6. Institutional Profiles - An integral part of the Bureau Management Information System,but organized as a program,is the activity devoted to collecting and maintaining a comprehensive data set about each health manpower education and training institution.

This computer based system carries a comprehensive data set for each institution in the system. The data fall into the following nine categories: (1) Institution and program descriptions; (2) Education and training program descriptors; (3) Enrollment and graduate statistics; (4) Faculty; (5) Facilities; (6) Financial information; (7) Student funding; (8) Government support; (9) Other information as required.

Each major category has several sub-categories with several hundred items of information. The file is not yet complete and will require at least eighteen additional months to become fully operational with most of the data cells filled. However, it is currently operational for the entire universe of institutions,which are currently supported financially in some way by the Bureau,and considerable amounts of information are readily available.

This file is to be a source of information to (1) program operations personnel, (2) statisticians and econometricians attempting to assess manpower resources, (3) program planners, (4) curriculum planners, etc. The file is designed to be useful in analysis, research and evaluation.

7. Program Statistics - an activity designed to prepare and disseminate, on a current schedule, statistics descriptive of the Bureau programs is the focus of this segment of the DMI program. Health Manpower data for use at legislative hearings are compiled and distributed to appropriate Division and Bureau personnel so that a common set of data are available to all. Several cyclical publications are prepared for use in the regional offices,the program divisions and other offices of program oriented personnel.

The Division of Health Resources Statistics in the National Center for Health Statistics (NCHS), Health Services and Mental Health Administration (HSMHA), is an organization that is involved in information collection that would seem to overlap DMI activities. There is, however, a mutual agreement and open communication covering each organization's data collection activity so that efforts are not duplicated. In some instances, DMI activities become primary sources of information for NCHS programs and in other instances DMI participates in NCHS surveys to collect primary data to meet our Bureau program requirements. The arrangements are semi-formal with a panel of individuals from each organization responsible for the review of each project that has as its purpose the collection of national health manpower data. Other government agencies are also involved in health manpower statistics. In an effort to keep abreast of the activities of these agencies DMI sponsors periodic meetings of representatives from the Department of Labor, Office of Education, National Center for Health Statistics, Regional Medical Programs, Office of Economic Opportunity, the National Institute of Mental Health, etc.

SURVEY OF REGISTERED NURSES EMPLOYED IN PHYSICIANS' OFFICES

by Sally Hull Jones
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This survey is being conducted by the Division of Nursing, Manpower Evaluation and Planning Branch to determine future needs for the education and training of registered nurses employed in physicians' offices. It is designed to study the role of the registered nurse in the physician's office in terms of biographical characteristics and educational attainment; conditions of employment, such as hours of work, salary, and fringe benefits; functions and duties of the office nurse; conditions which may encourage or inhibit the expansion of the professional nursing role in the office setting; and conditions which influence the nurse's participation in additional educational programs.

The study sample will include nurses employed in solo, partnership, and group practice settings, and nine types of medical specialties. Nurses in both medical and osteopathic physicians' offices will be included.

Because there is no current central listing from which names and addresses of office nurses can be drawn, a two-step procedure for contacting individuals will be used. First, a brief form will be mailed to a sample of about 12,000 physicians asking them for the names of registered nurses employed in their offices, and minimal information about their practice settings. All, or a subsample, of the names of office nurses given by the responding physicians will be used to draw a sample of 3,000 office nurses. The survey questionnaire will then be mailed to the nurses. Two mail follow-ups of all nonrespondents will be made, followed by telephone follow-ups of a sample of the nonrespondents in the effort to achieve an 85 percent response rate.

Staff members have conducted interviews with nine office nurses employed in different specialties and types of practice settings. These nurses pretested the survey questionnaire, and reported no difficulty in completing the form within 45 minutes.

The final comprehensive report of the study results is expected by 1973.

An outline of the purposes of the survey and data to be secured from the office nurses follows.

I. Purposes of The Survey

A. Assist Division of Nursing to fill its responsibility for assessing the need for nursing manpower and recommending ways by which the supply and preparation of nursing might be increased and improved to meet the need for nursing services.

B. Gain understanding of the interest and ability of nurses already employed in the private medical practice field to expand their professional nursing activities.

C. Secure information as basis for policy regarding nursing practice.

D. Secure information as basis for policy regarding educational programs, both basic and continuing.

II. Objectives of The Questionnaire

To Learn:

A. The characteristics of office nurses

B. The salaries, hours of work, fringe benefits, and other conditions of employment of office nurses.

C. The functions and duties of office nurses

1. In relation to their salaries
2. In relation to their education and training
3. In relation to length of service
4. In relation to type of medical practice
5. In relation to presence of other personnel
6. In relation to presence and use of community facilities
7. Other

D. The degree of interest among office nurses in broadening their professional nurse role.

1. In relation to the above (C 1, 2, 3, 4, 5).
2. In relation to family responsibilities
3. In relation to employer's attitudes
4. Other

E. The degree of office nurse interest in securing additional education or training.

1. In relation to above (C and D)
2. In relation to available educational facilities
3. Other

DATA FOR AN EVALUATION OF THE EFFECTIVENESS AND EFFICIENCY OF NURSING EDUCATION PROGRAMS

by Victor K. Heyman
Project Director
Cresap, McCormick and Paget, Inc.

Introduction

Cresap, McCormick and Paget has been embarked since July on an eighteen-month study of the "Effectiveness and Efficiency of Nursing Education Programs" under the auspices of the Division of Nursing. In this presentation we will acquaint you with our study, solicit your comments and knowledge of caches of data, and present some of our initial impressions of the extent to which needed data is available. First I will outline our study objectives and scope. Then I will highlight four major aspects of our approach and the data problems we think we have found with each.

Study Objectives and Scope

The principal objectives of the study are to:

1. Determine the relative cost-effectiveness of the Diploma, Associate Degree and Baccalaureate nursing education programs.

2. Based on our findings, recommend Federal funding alternatives to provide the required number of nurses of the necessary skill levels in the proper locations at least cost for the 1970's and early 1980's.

3. To the extent that essential data are lacking to provide definitive answers to essential policy questions, we are to recommend a Federal research program to fill the gaps.

The scope of the study requires us to tap all available data sources, including published and unpublished studies, data tapes, etc. When feasible, we are to conduct sufficient additional research to indicate the probable direction of findings of future research programs, but the study is basically limited to analysis of the available literature.

At present we are in the final stages of drafting an initial report on our literature search and synopses for an annotated bibliography. We still are searching for new sources of data and would appreciate their being brought to our attention.

Basic Approach

We have given considerable thought to the question of how best to approach the determination of relative cost effectiveness. The key problem is determining effectiveness. Effectiveness must be viewed in terms of the duties new nurses will be expected to perform throughout their working lives in whatever part of the health delivery system they may be employed.

This view has four major implications. First and foremost, it means that we must concentrate on the future rather than the present or past. Second, we must determine the supply and demand picture for nurses of different professional capabilities. Third, we need to know the relative capabilities of the graduates of the three types of programs. Finally, we must be able to determine the costs to the nation of training various numbers of nurses with specified skills. Each of these four points now will be explained briefly.

Future Orientation

First is the necessity for future orientation. We could have concentrated on the present, simplifying our problem considerably. However, the current oriented approach would not have been adequate because our society is moving so fast that the results of such a study would have contributed little to the planning of Federal funding programs of tomorrow. Rapid changes are occurring in such areas as:

- The content and length of the nursing education programs.
- The relative importance of the various components of the health delivery system, particularly as some new components are being created.
- The roles of nurses within the health professions, both with respect to the physician and the patient, particularly as new health professions are created.
- The extent of the shortage of nurses, in at least some skill levels and in at least some geographical settings.

- The skill requirements on nurses imposed by medical technology.

With these and other changes occurring, we felt that the study would be most useful if we looked ten and fifteen years in the future to the point at which our recommendations might have a significant effect. While not neglecting the present, we are concentrating on 1980 and particularly 1985.

Supply and Demand

Second, the study emphasizes the supply and demand for nurses of various skill levels. It appears that the nearly universal shortage of nurses in the United States has been largely overcome in some areas, partly by the increase in practicing nurses in the past decade, partly by a substitution of other health professionals, and partly by a retrenchment by health employers because of economic stringencies. The March 1969 survey of health manpower in hospitals pointed in this direction when compared with the April 1966 survey, and informal conversations indicate a possibly accelerated closing of the supply and demand gap.

To emphasize how critical supply and demand projections are to our study we need to carry the point a little further. If economic pressures and the influx of other health professionals are leading to a surplus of technical nurses, the programs teaching professional nurses may be more cost-effective despite their higher costs. On the other hand, if physicians' assistants and other highly skilled health positions are likely to be filled by non-nurses, the technical nurse education programs might be the more cost-effective.

While data exists on the number of baccalaureate and other nurses who are in the labor force, and how many would be needed according to the criteria of the 1963 Surgeon General's report, these numbers do not quite tell us the number of "professional" and "technical" nurses needed. Calculations of future supply and demand curves for nurse-pediatricians, nurse-midwives, and other "nurse practitioners" appear nonexistent.

We are also searching for several key pieces of current information. We expect to see a slackening in the rapid growth in hospital demand for nurses, which had led to a growth in this field from 56 percent of all nurses in 1946 to 65 percent in 1966. Recent data also might show that labor force participation of nurses has increased as the nation's economic difficulties have strained family budgets. Moreover, we lack data on the numbers, locations, and educational background of nurses unable to find work and drawing unemployment insurance.

One might then say that Federal programs and the nursing education programs have been effective in meeting the need for nurses, at least for the time being. To be effective in the future, however, these programs must be designed to meet the peculiar demands of the future, just as teacher education programs are having to be much more "market-oriented." We have not had much luck finding quantitative data on the skill needs of the future health market.

Qualitative Capabilities

Third, we need to know a great deal about the relative capabilities of the graduates of the three types of programs in terms of their on-the-job training needs, their job performance, and their growth capabilities. We have not seen a single report of statistical significance objectively measuring the on-the-job differences in performance of graduates of the three types of programs. We are still searching for documentation that baccalaureate nurses have superior capabilities to become nurse practititioners and supervisors in the health delivery system of the future or that AD graduates or recent Diploma graduates have superior technical skills. Moreover, an agreed system for measuring such differences still does not exist.

Costs

Finally, we gingerly approach the analysis of the costs of nursing education. The various studies give a fair picture of the short-run average costs of the programs, although the reasons for differences in cost per student credit hour are difficult to explain and suggest that accounting practices may be coloring the results. However, past studies mislead us about the costs of continuing to produce nurses at current rates because they ignore the condition and costs of construction of the educational buildings; neither construction nor depreciation costs have been included. Moreover, none of the past studies tell us what the nation must pay to increase student output per year by one or two or five thousand graduates because they say nothing about the slack in the system nor do they use differential attrition rates. Finally, we are searching for the Rosetta stone that allows us to translate Diploma school costs into a common language with AD and Baccalaureate school costs.

Summary

This presentation has described our approach to the determination of the effectiveness and efficiency of nursing education programs in terms of four key characteristics: an orientation toward the next 10-15 years, a new look at supply and demand bearing heavily on the issue of the skills of nurses available and in demand, a questioning look at the differential capabilities of graduates of the three types of programs and how to measure those capabilities, and a fresh look at previous cost studies to determine marginal or incremental costs and to analyze the reasons for reported results.

Our study requires us to pick the brains and review the publications of the experts in the field, rather than to generate original research data. We are thankful for this restriction in our scope because a great deal of original research appears needed and a few of the questions just might not be researchable at present.

DEVELOPMENT OF A NURSING EDUCATION INFORMATION SYSTEM

by Robert H. Goldsteen
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If nursing is a valuable national resource, information relating to it is not only desirable, but necessary. Under this premise, the Division of Nursing, Bureau of Health Manpower Education (BHME), National Institutes of Health (NIH), entered into a contract with Information and Communication Applications, Inc. (ICA), in June 1971 to develop a basic Nursing Education Information System (NEIS) to assist in the evaluation of the efficiency and effectiveness of nursing education. Such a system, even in its initial limited form, provides, to the best of our knowledge, the first system which combines various types of data related to nursing, including the national population, hospitals, and institutions of nursing education, into a single computerized system which will be capable of answering questions and producing detailed analyses. This system is being designed to provide data for the analysis of such questions as, "Is there a nursing shortage - if so, where is it, and how should the Government react to alleviate it?" Computer data does not directly answer these questions but it can provide the basis for meaningful human analysis.

All the raw data being utilized was developed previously by members of the Interagency Conference on Nursing Statistics. As a result, I am pleased to be able to present a progress report, so to speak, on your work. As an "outsider" to the field of nursing statistics, I believe that a few observations are in order before I describe the actual system. Most Government, non-profit and industrial organizations who develop nursing data do so as a by-product of some other function. Since the data is gathered for what may be termed "parochial" uses, the availability of the information to the nursing community is purely voluntary. Little "raw" data from the various studies is readily available and when it is the cost of obtaining it is often high.

The data "gatherers" tend to be the data "users." As such, the primary emphasis is placed on utilizing the data for organization purposes, rather than contributing it to the "community" fund of information. Relatively little effort has been devoted to developing standards and, therefore, conversions are required when the user tries to cross-reference data developed by different organizations. Data as such is practically worthless unless it is converted to meaningful information. Major emphasis, therefore, is being placed on testing and validating data so that meaningful analyses will result from its use.

The major problem, however, facing the nursing information system designer, is the question of invasion of privacy. Many of the individuals and institutions which supply basic raw data have been reluctant to provide information without strict assurance that unauthorized personnel would not be able to trace the data to its source. As a result, worthwhile studies can be conducted on a one-time basis but when they are repeated at a future date, the new information can be compared to the old on only the most general basis. It, therefore, becomes impossible, for example, to determine the cost per credit hour in a given nursing school over a period of time. By the same token, career pattern information cannot be developed from the ANA census since one cannot always uniquely identify a given nurse in previous or subsequent years. Since this data is required for both planning and research purposes, I would like to propose the following solution to the problem:

One organization such as ANA or NLN be designated as a clearing house for sensitive data related to individuals and institutions. When this data is collected it would be forwarded directly to them, where master control numbers would be affixed. The organization would have the only copy of the cross-reference list between actual names and control numbers. In the case of individuals, for example, their social security number would be deleted from the record and a 7-digit number inserted. All data about that individual would always utilize the same control number. In this way, we could protect an individual's privacy while obtaining the actual data required.

At the present time no organization, whether Government or private, has a complete data bank. The lack of such a central repository of information causes a major problem to any research effort. From a governmental point of view one group, the Division of Manpower Intelligence, NIH, has a mandate to consolidate all health care information. This will include nursing information. However, the scope of their problem is so immense, that many years of effort will be required until such a system becomes operational.

The system being developed for the Division of Nursing by ICA is more limited in scope and will initially handle only registered nurses (active and inactive), institutions of nursing education, hospitals, and census data. The system is designed to utilize the NIH computer facility (IBM 360) with remote terminals. A software information retrieval system, known as IRS, is utilized to make inquiries of the data basis, perform mathematical computations, and format output reports. Some typical user-oriented questions which the final system will answer are:

- Is there a correlation between the active percent of nurses in a county and the employment facilities (doctors, hospitals, nursing homes, etc.)?

- Do graduates of one educational program remain active in the profession longer than those of other programs?

- Is the age distribution of nurses similar to that of all professionally employed women in the county in which they live?

All data is stored on magnetic tape as the computer's disc files do not have sufficient capacity for a 300 million character file. The software system is designed to accommodate four primary files, each of which can have 10 subfiles. The initial system will utilize one file for data related to individuals (the ANA 1966 census), one file for data related to nursing educational institutions, one file for miscellaneous data such as the 4th count of the U.S. Census, and one file for experimental use. The first three files will be "protected" so that users of the system cannot add to or modify the data. The fourth file, however, will be open to the users. Users can enter their own data bases in this area and utilize them to perform analyses and computations in conjunction with the existing data bases. As an example, if the Department of Labor conducted a study of women with advanced degrees and want to compare it on a county-by-county, state, or regional basis with nurses with advanced degrees, the Labor study could be coded and inserted in file type 4. This file could then be compared with file 1 (the ANA census) and a report produced.

The actual files are organized on a state and county basis with information related to items within a county being carried in alphabetical sequence. GSA standard codes are being utilized.

The Nursing Education Information System (NEIS) is being designed for use by the non-computer "technologist." The only specialized knowledge required by the user is an understanding of the file layout and an understanding of the IRS query and report formatting language. Once mastered, the user can make inquiries of the data base, perform analyses (single and/or multifile) and prepare reports. Inquiries to the system can be made from remote terminals at NIH and all answers, except very long printouts, are prepared on the same terminal.

Two examples of the use of the system will help clarify its purpose:

The first, an example utilizing a single data file, is an analysis of active and inactive nurses by county. In this operation, the system totaled the number of nurses in each county and then computed the percentages for active, inactive, and not reporting. The output results were then sorted and edited for printing. The printout is shown in Appendix I.

The second example is that of a multifile computation where data is located and summarized in one file and used for computations with data from another file. The question asked of the system was, "What is the ratio of nurses (active and inactive) in each county of Alabama per 100,000 population? Print number of nurses, county population and ratio. Sort by GSA county code." In this computation, the system first utilized the ANA census to determine how many nurses there were in each county. The data was compared to the U.S. Census (1970, 4th count) information and the ratio per 100,000 computed. The results were sorted by county and printed. Appendix II shows the printout.

The skeletal NEIS with ANA census and institution data is scheduled for operational testing in January 1972. The system will then be tested for accuracy and applicability during the following 3 months. Concurrently, the existing files will be expanded and additional files inserted until June 1972 when it will become operational. After becoming operational, training will be conducted for potential users and various analyses will be performed on the data. The overall contract is scheduled for completion in October 1972.

Although the system is designed to handle information requests, the basic system, even after completion, will not satisfy the total information requirements of the Division since large amounts of potentially useful data have not been entered into the computer data bank. The system, however, is open-ended and additional data can be added at any time it is required for other types of analyses.

No system is better than the data which goes into it. Each of us realizes the problems with the information which we now have. However, we also believe that the existing data has not been analyzed to its full potential. This analysis will provide the basis for future work in the area of:

- o Obtaining more meaningful data (on a time and content basis).

- o Analyzing and validating raw data.

- o Knowing which data is worthy of the time and expense required for its acquisition.

The future utility of the system is, however, dependent upon the timely inclusion of new data as it is developed. Provisions have been made in the system design for chronological designators for each field in the individual and institutional files. Therefore, as new data becomes available, even on a fragmentary basis, it can be added to the system. An example of this could occur if a state, such as Maryland, would supply licensing renewal data to the Division of Nursing every two years in a form usable by the computer. The ANA census data for the year 1966 could be updated to the time of the license renewal. This data would be "flagged" by the system as being 1970 data and the user could take this factor into account when utilizing the system. If the data can be kept current, realistic sampling becomes possible from information maintained by the system.

During the past four months, ICA personnel have visited a number of the members of this organization to gather information. I would, therefore, like at this time to publicly thank you for your cooperation. If anyone desires any additional information related to this project, please feel free to call upon me at any time.

APPENDIX I

11-03-71

COMPARATIVE ACTIVITY STATUS REPORT FOR FOUR STATES BY COUNTY

STATE	COUNTY	PERCENTAGES ACTIVE	INACT	-REP	ACTUAL COUNTS TOTAL	ACTIVE	INACTIVE	NOT REPORTED
01	001	63.8	33.3	02.7	36	23	12	1
01	003	58.0	36.6	05.3	150	87	55	8
01	005	61.5	30.7	07.6	26	16	8	2
01	007	68.7	25.0	06.2	16	11	4	1
01	009	84.2	15.7	00.0	19	16	3	
01	011	100.0	00.0	00.0	9	9		
01	013	88.2	11.7	00.0	17	15	2	
01	015	75.2	21.9	02.8	210	158	46	6
01	017	78.6	18.6	02.6	75	59	14	2
01	019	56.2	37.5	06.2	16	9	6	1
01	021	63.6	36.3	00.0	22	14	8	
01	023	80.0	20.0	00.0	25	20	5	
01	025	68.2	29.2	02.4	41	28	12	1
01	027	92.3	07.6	00.0	13	12	1	
01	029	100.0	00.0	00.0	4	4		
01	031	68.8	28.8	02.2	45	31	13	1
01	033	67.5	27.9	04.5	111	75	31	5
01	035	66.6	22.2	11.1	9	6	2	1
01	037	78.9	21.0	00.0	19	15	4	
01	039	74.6	19.4	05.9	67	50	13	4
01	041	69.2	30.7	00.0	13	9	4	
01	043	76.1	22.2	01.5	63	48	14	1
01	045	65.4	31.4	03.1	159	104	50	5
01	047	68.5	24.0	07.4	162	111	39	12
01	049	63.3	33.3	03.3	30	19	10	1
01	051	66.6	31.3	01.9	51	34	16	1
01	053	78.4	17.6	03.9	51	40	9	2
01	055	76.0	19.8	04.1	217	165	43	9
01	057	72.2	27.7	00.0	18	13	5	
01	059	85.1	11.1	03.7	27	23	3	1
01	061	79.1	16.6	04.1	24	19	4	1
01	063	85.7	14.2	00.0	7	6	1	
01	065	73.3	20.0	06.6	15	11	3	1
01	067	72.7	27.2	00.0	11	8	3	
01	069	69.4	23.7	06.7	59	41	14	4
01	071	75.0	21.8	03.1	32	24	7	1
01	073	71.9	24.9	03.1	2,126	1,529	530	67
01	075	60.0	26.6	13.3	15	9	4	2
01	077	67.7	31.4	00.7	127	86	40	1
01	079	85.7	14.2	00.0	7	6	1	
01	081	64.1	32.5	03.3	120	77	39	4
01	083	65.1	27.9	06.9	43	28	12	3
01	085	40.0	60.0	00.0	5	2	3	
01	087	85.7	11.6	02.5	197	169	23	5
01	089	43.2	52.7	03.9	633	274	334	25
01	091	62.7	27.9	09.3	43	27	12	4
01	093	76.1	19.0	04.7	21	16	4	1
01	095	65.4	32.0	02.4	81	53	26	2
01	097	70.2	24.7	04.9	996	700	247	49
01	099	71.4	28.5	00.0	21	15	6	

11-03-71

COMPARATIVE ACTIVITY STATUS REPORT FOR FOUR STATES BY COUNTY

STATE	COUNTY	PERCENTAGES ACTIVE	INACT	-REP	ACTUAL COUNTS TOTAL	ACTIVE	INACTIVE	NOT REPORTED
01	101	69.1	26.2	04.6	670	463	176	31
01	103	62.7	34.3	02.9	137	86	47	4
01	105	64.2	35.7	00.0	14	9	5	
01	107	81.4	11.1	07.4	27	22	3	2
01	109	66.6	29.1	04.1	48	32	14	2
01	111	80.0	16.0	04.0	25	20	4	1
01	113	78.2	21.7	00.0	69	54	15	
01	115	79.3	17.2	03.4	29	23	5	1
01	117	57.7	42.2	00.0	45	26	19	
01	119	65.2	26.0	08.6	23	15	6	2
01	121	72.3	23.3	04.2	163	118	38	7
01	123	81.0	15.5	03.4	58	47	9	2
01	125	75.2	20.0	04.7	425	320	85	20
01	127	76.0	16.9	07.0	71	54	12	5
01	129	70.0	30.0	00.0	10	7	3	
01	131	75.0	25.0	00.0	12	9	3	
01	133	63.6	31.8	04.5	22	14	7	1
		69.2	26.9	03.8	8,152	5,643	2,196	313

APPENDIX II

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RATIO OF NURSES PER 10CK POPULATION IN ALABAMA BY COUNTY

COUNTY	NURSES	POPULATION	RATIO
001	36	24,445	147
003	150	59,346	252
005	26	22,541	115
007	16	13,809	115
009	19	26,853	70
011	9	11,824	76
013	17	22,006	77
015	210	102,982	203
017	75	36,351	206
019	16	15,601	102
021	22	25,179	87
023	25	16,587	150
025	41	26,723	153
027	13	12,635	102
029	4	10,994	36
031	45	34,860	129
033	111	49,621	223
035	9	15,643	57
037	19	10,659	178
039	67	34,071	196
041	13	13,176	98
043	63	52,432	120
045	159	52,662	301
047	162	55,268	293
049	30	41,979	71
051	51	33,525	152
053	51	34,898	146
055	217	94,125	230
057	18	16,246	110
059	27	23,931	112
061	24	21,921	109
063	7	10,650	65
065	15	15,888	94
067	11	13,251	83
069	59	56,559	104
071	32	39,193	81
073	2,126	644,786	329
075	15	14,334	104
077	127	68,099	186
079	7	27,280	25
081	120	61,224	196
083	43	41,670	103
085	5	12,896	38
087	197	24,749	795
089	633	186,362	339
091	43	23,817	180
093	21	23,787	88
095	81	54,196	149
097	996	317,084	314
099	21	20,879	100
101	670	167,717	399
103	137	77,299	177

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RATIO OF NURSES PER 100K POPULATION IN ALABAMA BY COUNTY

COUNTY	NURSES	POPULATION	RATIO
105	14	15,388	90
107	27	20,325	132
109	48	25,037	191
111	25	18,330	136
113	69	45,385	152
115	29	27,954	103
117	45	38,029	118
119	23	16,972	135
121	163	65,260	249
123	58	33,837	171
125	425	115,991	366
127	71	56,240	126
129	10	16,239	61
131	12	16,302	73
133	22	16,649	132

OCCUPATIONAL DATA FROM THE 1970 CENSUS

by Stanley Greene
Chief, Economic Statistics Branch
Population Division
Bureau of the Census

Besides nursing, there are 449 other occupations for which statistics were gathered in the 1970 Census. Since 1820 there has been nothing new in the scope of the occupations, but many items have been redefined with emphasis on fine detail, e.g., the 300 items in the occupational classification in 1960 increased by 50 percent to a total of 450 in 1970.

One major change in the 1970 classification is the system of presentation. In the health area, for instance, instead of a straight alphabetical directory of occupations, other dimensions, such as the field of work and the class of worker, were also considered and included in the presentation.

With specific reference to the interests of this Conference, I might mention some changes from the 1960 content of the occupational classification of the nursing field (broadly defined). These changes point up new categories and splits, and modifications of former categories:

1. Registered nurses.

Nurses in dentists' offices were added to this category from the previous classification as attendants, physicians' and dentists' offices. Also, nurses not elsewhere classified (n.e.c.) were added here and taken from the practical nurse classification.

Teachers of nursing in hospitals were counted with teachers, except college and university (n.e.c.). A director or superintendent of nurses was moved to a new category - health administrators.

2. Therapists.

Rehabilitation counselors and vocational rehabilitation counselors were added to this group from professional, technical, and kindred workers (n.e.c.).

Chiropodists and podiatrists were moved to a new group - podiatrists.

3. Dental assistants.

A new category, taken from attendants, physicians' and dentists' offices.

4. Health trainees.

This group is composed mainly of student nurses, but also contains dietetic interns.

5. Health aides, except nursing.

A new category which includes laboratory workers and assistants, formula makers or mixers, ambulance attendants (except fire department), and doctors', medical and chiropractors' assistants.

6. Lay midwives.

Only the title of this category was changed - from midwives to lay midwives - to indicate that nurse midwives were not included in this group.

7. Practical nurses.

This is essentially the same as in 1960. Nurses (n.e.c.) are now counted with registered nurses.

8. Nursing aides, orderlies, and attendants.

Psychiatric technicians in mental hospitals, and nursing companions or persons caring for invalids in private homes were added to this group.

Tray girls, food cart boys, and formula mixers, etc. were taken out of this group and placed with health aides, except nursing.

The jobs comprising the occupational fields mentioned are pointed up in a special listing. For example, some of the titles under the heading "075 - Registered nurses" are: Ambulatory-care coordinator, Anesthetist, Coronary-care nurse, County nurse, Educational director-Visiting Nurse Association, Floor supervisor, Geriatric nurse, Home-care coordinator, Industrial nurse, Manager-central supply, Nurse midwife, Nurse technician, Public health nurse, Surgical nurse, Teacher of psychiatric aides, Ward supervisor, X-ray nurse, etc.

An overview of the entire 1970 Occupational Classification System shows the relationship of the nursing occupations to other parts of the system, e.g., "Professional, technical, and kindred workers" (Census codes 001-199) include 27 groups, such as Engineers; Life and physical scientists; Mathematical specialists; Nurses, dietitians, and therapists; Physicians, dentists, and related practitioners; Teachers, college and university; Teachers, except college and university; Health technologists and technicians; Technicians, except health, engineering, and science, etc. "Service workers, except private household" (Census codes 901-979) include six categories, among them the group entitled "Health Service Workers," i.e., Dental assistants; Health aides except nursing; Health trainees; Lay midwives; Nursing aides, orderlies, and attendants; and Practical nurses.

As you know, the Census publications for individual States are distributed as they come off the press. Hopefully, the national summaries for large and small areas will be out by July 1972. So far, the occupational data, including tables for the nursing field, have been completed for only one State. The remaining reports in this series are "in the works."

REPORTS OF ICONS MEMBERS

As a part of the regular business meetings of the Conference, members of the Interagency Conference on Nursing Statistics briefly outline their progress and future plans for projects conducted by the individual agencies and associations. Reports given at the November 1971 meeting follow.

Division of Nursing:

1. Two papers concerned with data needs and availability for an evaluation of the effectiveness and efficiency of nursing education programs are summarized in this publication as part of the program meeting reports.

2. The first phase of the office nurse survey is under way--its purpose and design also are described in this report of the program meeting.

3. The Nurse Training Act of 1971 has been signed into law, but the appropriations have not been made. The Division of Nursing is responsible for the annual evaluation reports of the impact of this legislation on the shortage of registered nurses.

4. The 1970 hospital survey is expected to be completed next year--the report will contain information on nurse supply in hospitals by position. Data are being used as one basis for determination of loan forgiveness.

5. The pilot test of the home health agency reporting system developed in New Jersey is near completion--the final report is due by the end of the year.

National League for Nursing.

Division of Research:

1. Adjustments have been made in the academic year 1969-70 admissions to RN programs as shown in the September 1971 Nursing Outlook. To obviate the difficulty of overlapping registration which occurred last year, the reporting year will be changed. This year the schools have been asked to report admissions by month in order to smooth out the admissions pattern, and then the reporting year for both admissions and graduations will be from August 1 through July 31, instead of September 1 through August 31. Schools will continue to report enrollments as of October 15. Members agreed that all changes and adjustments should be made this year, and the revised figures will be published in the 1970-71 issue of Facts About Nursing.

2. Some 35 States have agreed to participate in a Nurse Career-pattern/State Board follow-up project to evaluate the testing program. Confidentiality of information will be protected and NLN staff are working on the forms which will go to the States for completion.

3. The proposal to develop an open curriculum has not yet been funded. A brief discussion of institutional policies and practices, and recommendations of the NLN Advisory Committee for the study will be published in an article scheduled for the December issue of Nursing Outlook.

Department of Home Health Agencies and Community Services:

1. This Department has been broadened to include auxiliary nursing personnel and services other than nursing.

2. The latest income and expenditures survey of home health agencies will be published in the March issue of Nursing Outlook.

American Nurses' Association:

1. The 1970-71 edition of Facts About Nursing will be out early in 1972.

2. Work has begun on the contract with the Division of Nursing for the next RN Inventory (reference year 1972). Some States have already completed registration and mailed the Inventory forms.

American Hospital Association:

1. Data collection for the 1970 survey of nursing personnel in AHA hospitals has been completed. Data from non-AHA hospitals has been obtained from a different source.

2. The investigation of factors affecting staffing levels of nursing personnel in general hospitals is under way, with Margaret Ellsworth and Martha Johnson as nurse consultants for the project. Preliminary descriptive data show numbers of nurses and the hours they work in these hospitals. The statistical model to be constructed and tested will relate the levels of staffing to hospital characteristics.

3. The Bureau of Research Services report of other projects scheduled for 1971-72 is available from the Association.

American Medical Association:

1. The new report on foreign medical graduates is complete.

2. The AMA is a user rather than a producer of nursing statistics. Because money is now available for training physicians' assistants, the Nursing Section of the Association is charged with the assessment of current and future need for new manpower groups-generalists and specialists. In line with this assessment, statistics from the nursing field are most important, e.g., how many clinical nurse practitioners are there, and how many are needed? Also, how many nurses are calling themselves physicians' assistants? The tasks assigned to some physicians' assistants have been handled by nurses for years; therefore, a precise definition is needed of the work for which the new health workers will qualify.

3. On the agenda for the next AMA Convention are discussions of a national certification program for physicians' assistants, and the essentials for training them to be generalists.